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Another Metro Roads Project

METROPOLITAN TORONTO
DEPARTMENT OF ROADS

BIENNIAL REPORT

1959-60



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GEORGE O. GRANT
B.Sc., M.E., P. ENG.
COMMISSIONER OF ROADS



DEPARTMENT OF ROADS

75 EGLINTON AVENUE EAST

HU. 1-6171

TORONTO 12, August 1, 1961.

F. G. Gardiner, Esq., Q.C., LL.D., Chairman,
and Members of the Council of
The Municipality of Metropolitan Toronto.

Ladies and Gentlemen:-

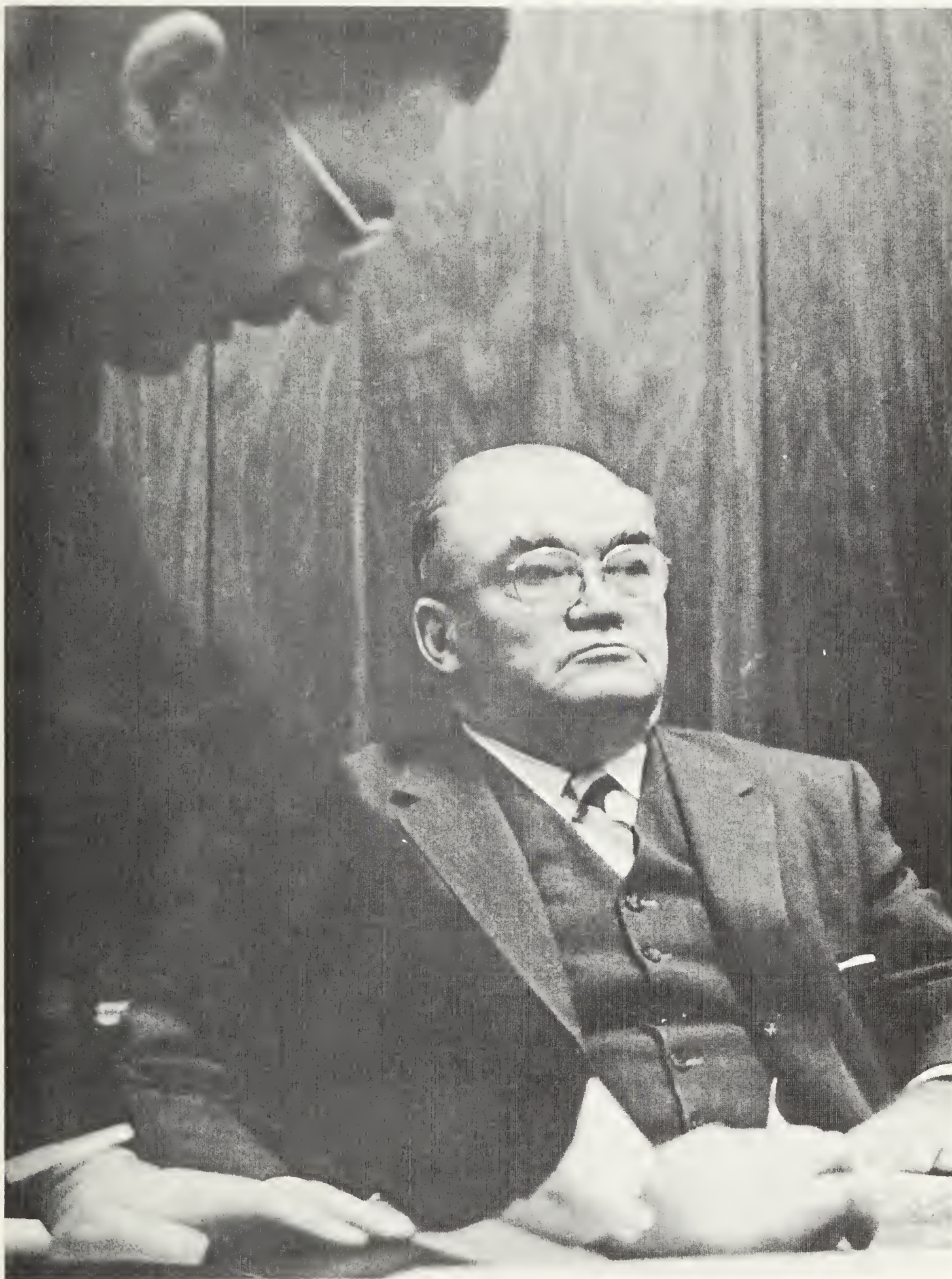
I forward herewith, for your information, Biennial Report
of the Department of Roads of The Municipality of Metro-
politan Toronto. It covers the operations of the Department
for the years 1959 and 1960.

Yours very truly,

Commissioner of Roads.

ET





Discussion on Roads Matters
in Office of
FREDERICK G. GARDINER, Q.C., LL.D.,
Chairman, Metropolitan Council.

Committees
of Council

- The two Committees of Council pertinent to the Department of Roads are the Executive Committee and the Roads and Traffic Committee. Their membership for the two years embraced by this report was as follows:-

1959

1960

EXECUTIVE COMMITTEE

F. G. Gardiner, Q. C.
(Chairman)
W. R. Allen
A. M. Campbell
C. H. Hiscott
Mrs. J. D. Newman
N. Phillips, Q. C.
C. A. Tonks

F. G. Gardiner, Q. C.
(Chairman)
W. R. Allen
A. M. Campbell
Mrs. M. Curtis
Mrs. J. D. Newman
N. Phillips, Q. C.
H. O. Waffle

ROADS AND TRAFFIC COMMITTEE

K. G. Waters
(Chairman)
A. M. Campbell
A. G. Cranham
P. G. Givens
N. C. Goodhead
J. L. Holley

A. G. Cranham
(Chairman)
W. R. Allen
A. M. Campbell
W. A. Edwards
J. L. Holley
K. G. Waters

The Metropolitan Chairman is ex-officio a member of the Roads and Traffic Committee.

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(Photograph of Metropolitan Chairman by K. Taconis)

- FOREWORD -

With the closing of its books on December 31, 1960, the record of the Metropolitan Department of Roads reflected completion of the following undertakings in the seven-year period since its inception on January 1, 1954:-

Structures:

Railway Grade Separations - New	18	
- do. - - Reconstructed .	3	
Other	<u>53</u>	74
New Roads		16.34 miles
Existing Roads Reconstructed		8.03 "
Pavement Widening		40.70 "
Paving Over Existing Gravel Roads		1.20 "
Resurfacing of Gravel Roads		7.50 "
Resurfacing of Permanent Pavements		97.00 "
Intersectional Improvements	106	
Major Repairs to Bridges	3	
Overpasses Widened	1	

Expenditure charts indicated that capital costs during this period were as follows:-

	\$
1954 -	4,120,164
1955 -	10,231,814
1956 -	15,567,954
1957 -	15,888,326
1958 -	13,491,954
1959 -	13,858,094
1960 -	27,216,099

These were developments designed to maintain pace with the expanding requirements of a Metropolitan area, which, traffic-wise, has no precedent in Canada.

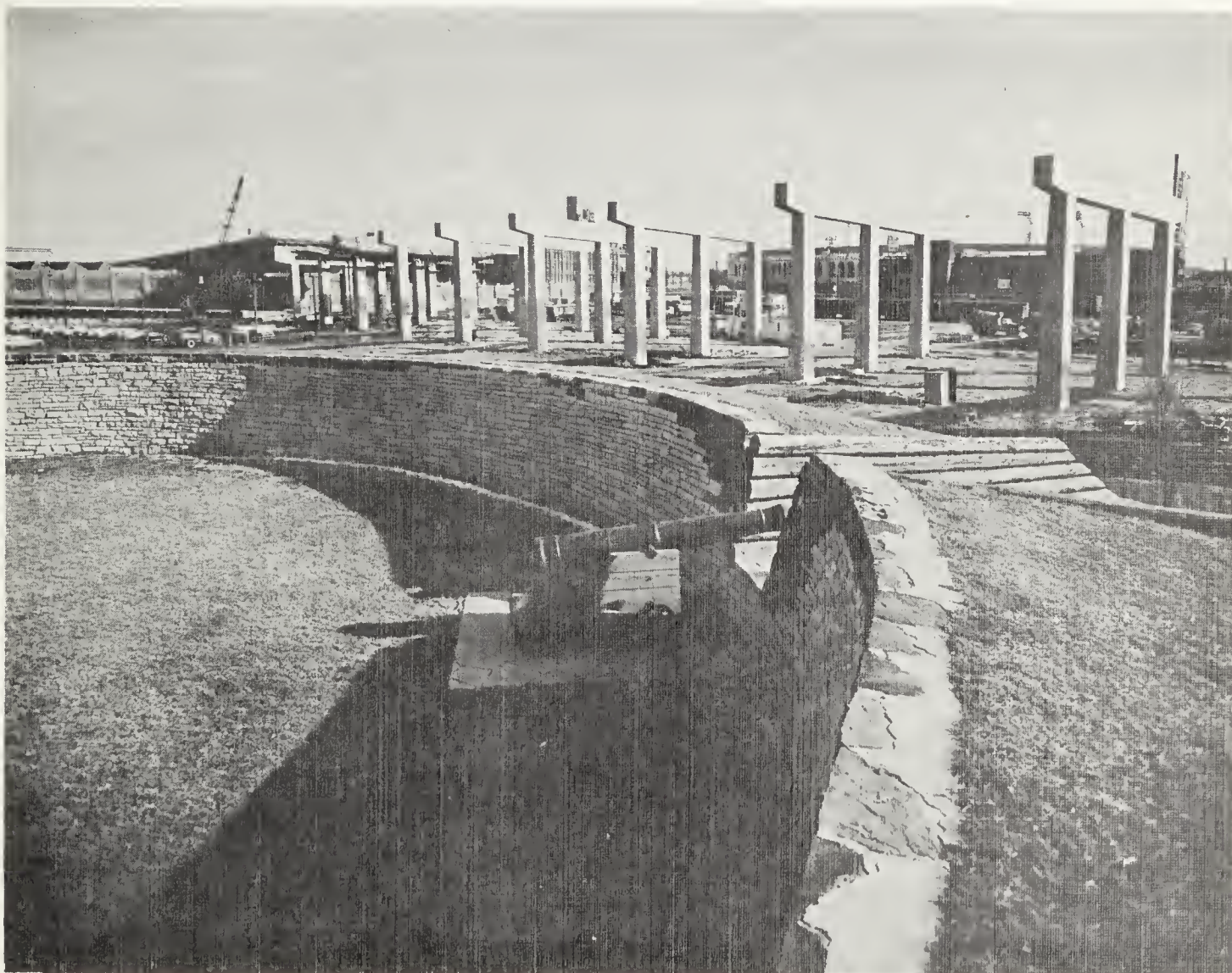
During these seven years, motor vehicle registration in the Metropolitan area increased from 289,814 to 519,238. Population has progressed from 1,172,556 to 1,540,634. The ratio, at the end of 1960, was one vehicle to 2.97 persons, a statistic exceeded, on this Continent, only by Detroit and Los Angeles.

Proportionately, vehicle registration has increased faster than population, and it is estimated that two-thirds of the area's working force now travel to their places of employment by motor vehicle.

So it is, and will likely continue to be, that planning, design and construction conform to a pattern evolved to meet the impact of a growing transportation problem consequent upon a population growth of 50,000 annually.

In January, 1960, the Metropolitan Toronto Planning Board presented its Draft Official Plan for the Metropolitan Toronto Planning Area projected for twenty years.

The Plan foresaw a population of 2,300,000 in the Metropolitan area by 1980, and a significant change in the pattern of living, with the trend continuing towards the suburbs.



Old Fort York faces another invader.

The intent of this report is to detail the operations of the Department of Roads for the years 1959 and 1960 and to supplement reports, previously circulated, which covered its first five years.

The Capital Roads Program for the two years was as follows:-

	<u>1959</u> \$	<u>1960</u> \$
Avenue Road -		
Bloor Street to St. Clair Avenue; Widening of street allowance and pave- ment, and widening of C.P.R. subway	500,000	2,000,000
Bathurst Street -		
Sheppard Avenue to Steele's Avenue; Widening, gravelling and paving	250,000	50,000
Bayview Avenue -		
Blythwood Road to Steele's Avenue; Widening, grading, paving, and bridges at Lawrence Avenue	500,000	1,250,000
Bloor Street East -		
Prince Edward and Rosedale Viaducts; Replacement of decks, sidewalks, and deteriorated steel	-	500,000
Dixon Road, Scarlett Road and Lawrence Avenue West -		
Pavement widening	80,000	-
Don Valley Parkway, Bayview Avenue Extension, Lawrence Avenue East Improvement, and asso- ciated projects	5,000,000	5,000,000
Dufferin Street -		
Eglinton Avenue to Wilson Avenue; Grading, pavement widening, and widening of C.N.R. subway north of Eglinton Avenue .	900,000	250,000
Dundas Street East Extension	40,000	-
Dundas Street West and Royal York Road -		
Overpass and subway, C.P.R.	350,000	-
Dundas Street West -		
Old Dundas Street to Beamish Avenue; Six Points Interchange, widening and paving, and bridge at Mimico Creek	-	600,000

	<u>1959</u> \$	<u>1960</u> \$
Eglinton Avenue East Grade Separations	400,000	350,000
Frederick G. Gardiner Expressway	7,500,000	9,000,000
Jane Street -		
Weston Road to Wilson Avenue;		
Grade separations at C.P.R. and C.N.R.,		
south of Trethewey Drive; pavement		
widening and bridges at Black Creek	-	1,200,000
Keele Street -		
South limit of North York to Wilson Avenue;		
Widening and paving	300,000	100,000
Kennedy Road -		
Danforth Road to Sheppard Avenue; and		
Danforth Road -		
Danforth Avenue to Kennedy Road;		
Pavement widening and bridge at east		
branch of Don River	-	300,000
Kipling Avenue -		
Birmingham Street to Richview Side Road;		
Pavement widening and intersectional		
improvement	150,000	-
Grade separation at C.P.R., south of Bloor Street	-	700,000
Lawrence Avenue East -		
Victoria Park Avenue to Kingston Road;		
Widening, grading and paving, grade separa-		
tion at C.N.R., east of Kennedy Road; and		
bridge at The Willows, Highland Creek	-	400,000
Lawrence Avenue West -		
Yonge Street to Weston Road;		
Subway under C.P.R. and C.N.R., Weston;		
widening of street allowance and paving;		
replacement of bridge at Black Creek; and		
subway at C.N.R., east of Keele Street	1,200,000	1,100,000
The Queensway (Queen Street West Extension)	500,000	-
Spadina Road Expressway	100,000	300,000
Victoria Park Avenue -		
Danforth Avenue to Highway 401;		
Replacement of C.P.R. overpass at Lawrence		
Avenue East; widening and paving	600,000	700,000
Wilson Avenue -		
Avenue Road to Weston Road;		
Acquisition of property	-	100,000
Various property settlements	-	500,000
Yard land and buildings	<u>100,000</u>	<u>50,000</u>
Totals	<u>18,470,000</u>	<u>24,450,000</u>

Frederick G. - Following opening of the first section of
Gardiner this Expressway from the Humber River
Expressway to Spencer Avenue in August, 1958,
 construction of the second section,
easterly to Spadina Avenue, proceeded apace under nine contracts,
which were let in a total of \$14, 617, 308.

The nature of the Expressway's construction changed mid-way north of the Canadian National Exhibition grounds from a depressed right-of-way to an elevated structure, which will create a new profile along the waterfront to the Don River.

One particular section which presented problems was construction over the main warehouse of Loblaw Groceries Company, Limited, at Bathurst Street, which extends a distance of 480 feet. Despite the sinking of six caissons inside the building and the erection of columns for each through the roof, the Company's warehouse operations were maintained.

The contract consisted of four spans. The two outside sets -- over Bathurst Street and the east wall -- are 155 feet long, and the two inner sets, 84 feet long. The 155-foot girders actually cover 1-1/2 spans, in that they cantilever for 80 feet over the building.

The section of the Loblaw warehouse over which the Expressway passes has been completely treated with an asbestos fibre coating to provide a fire resistant surface of up to three hours.

Footings proved to be one of the major problems at some locations where steel "H" beams were first tried. The area, before land fill reclamation, formed part of the original waterfront, and a number of piles driven encountered either old timbers or boulders from rock-fill cribs that had been docks and wharves. As a result of this clash with Toronto's early history, nearly all of the footings required to be driven to bedrock in the form of 4-foot caissons in clusters of four or five.

One contract remains to complete this second section, which will call for an elevated structure for a length of 773 feet at Strachan Avenue.

The height of the structure is usually 25 to 30 feet, and its highest point is 65 feet, at Strachan Avenue.

From the Humber River to the centre of the City, it is being constructed to provide for six lanes, and the easterly section will have a width of eight lanes. The existing Lake Shore Boulevard, east from Bathurst Street, will be re-located to provide six lanes. Generally, the west-bound lanes will be directly under the Expressway, and the east-bound half to one side.

Access points, are, or will be constructed at The South Kingsway, Dunn and Jameson Avenues Interchange, Spadina Avenue, York-Bay-Yonge Streets area, Jarvis Street, Sherbourne Street, Don Valley Parkway, and Lake Shore Boulevard East.

Expenditure on the entire project to December 31, 1960, was \$34,542,195.

There was an additional expenditure of \$364,186 for engineering studies and land acquisition to the same date on account of the easterly extension of the Expressway from Leslie Street to Highway 2-A.



An encounter with relics from
Toronto's former waterfront.



The Frederick G. Gardiner Expressway proceeds easterly.





Don Valley - The second phase of the Metropolitan
Parkway Toronto Expressway System, the Don
 Valley Parkway, is rapidly becoming
the reality visioned by planners to assist in serving the traffic
needs expanding to north-east.

When fully completed, the Parkway will provide motorists with a completely modern six-lane divided highway, in a green-belt atmosphere, having interchanges with all principal intermediate thoroughfares.

This project will be unique among urban expressway developments, inasmuch as it is routed through the isolation of the Don Valley. It has minimized disruption to the life of the community and has concealed from an interested public many of its construction features.

In order to locate the Parkway economically, and capable of permitting safe travel at 60 m.p.h., it was necessary at some locations to divert the Don River, which effected a reduction in bridge construction. These river diversions were designed to accommodate normal flood waters, with the destructive velocities controlled at selected locations by the installation of check dams.

In addition to major hydraulic works, two railway lines, three oil pipe lines, Hydro high tension tower lines, and other services were relocated.

In all, some 6-1/2-million cubic yards of earth will be moved to construct the massive roadway embankments necessary to support the traffic load on a heavy-duty pavement. Probably, the most spectacular cut is at Sugar Loaf Hill, near Don Mills Road and the forks of the Don River. Here, 1-1/4-million cubic yards of earth have been removed, all of which, if loaded in modern earth-moving scrapers, would reach from Toronto to New York.

None of this earth was wasted. Such quantities as were not used in fill operations were placed in swampy and low areas as part of the proposed park development in the Valley.

The Parkway has 27 bridge structures incorporated in its design, falling into three general classifications -- river crossings, highway and railway grade separations. Of the 27 structures, 21 have been designed in steel and the other 6 in concrete. As of the end of 1960, 12 of the structures were completed and 7 in an advanced state of construction.

Where a bridge overpasses the travelled portion of the Parkway, an attempt has been made to retain the rural nature of the surroundings by stone-facing the abutments, giving a rustic appearance to the structure.

The majority of the grade separation structures are designed as composite steel-beam and concrete-slab bridges. These are generally three-span structures with open-end spans and the beams supported on concrete piers with circular columns.

All-weld construction has been employed, so far as possible where steel is concerned, except for field connections, which are made with high-strength steel bolts.

The three structures on the Bloor Street ramp, which span the extension of Bayview Avenue, the C.N.R. and the Don River, have received special architectural treatment. All three structures are designed as three-span continuous bridges, the main beams varying in depth along their length. This was done to maintain the aesthetic tone in keeping with the transformation of a scarred expanse of land into a recreational haven.



Bloor Street ramp structures.



Don Valley Parkway and Bayview Avenue Extension.



The Don Valley Parkway is scheduled for completion by 1966. The section between Bloor Street and Eglinton Avenue is scheduled for opening in the summer of 1961.

As of December 31, 1960, the total expenditure on the Don Valley Parkway and related works was \$15,469,234.

Bayview Avenue
Extension

- The parallel marginal roadway of the Don Valley Parkway, the 3 1/2-mile extension of Bayview Avenue, constructed on the west side of the Don River, from Moore Avenue to King Street, was opened to traffic on August 17, 1959. The three municipalities connected by this roadway are the Town of Leaside, the Township of East York and the City of Toronto.

This four-lane, controlled-access road, constructed mainly through park lands to River Street, and continued as a two-lane roadway to King Street, has provided a rapid route to the down-town area, with six access points. An inter-connection is also being constructed, north of Bloor Street, with the Don Valley Parkway.

The route has served immeasurably in relieving the overtaxed Mount Pleasant Road.



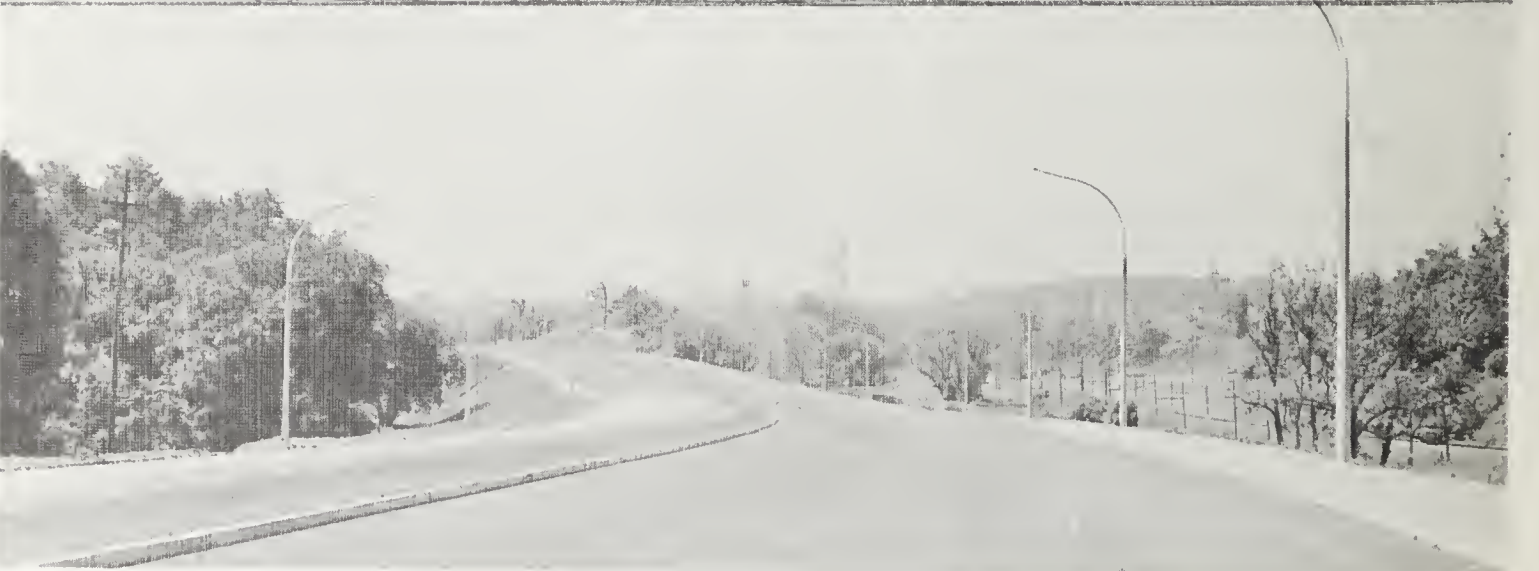
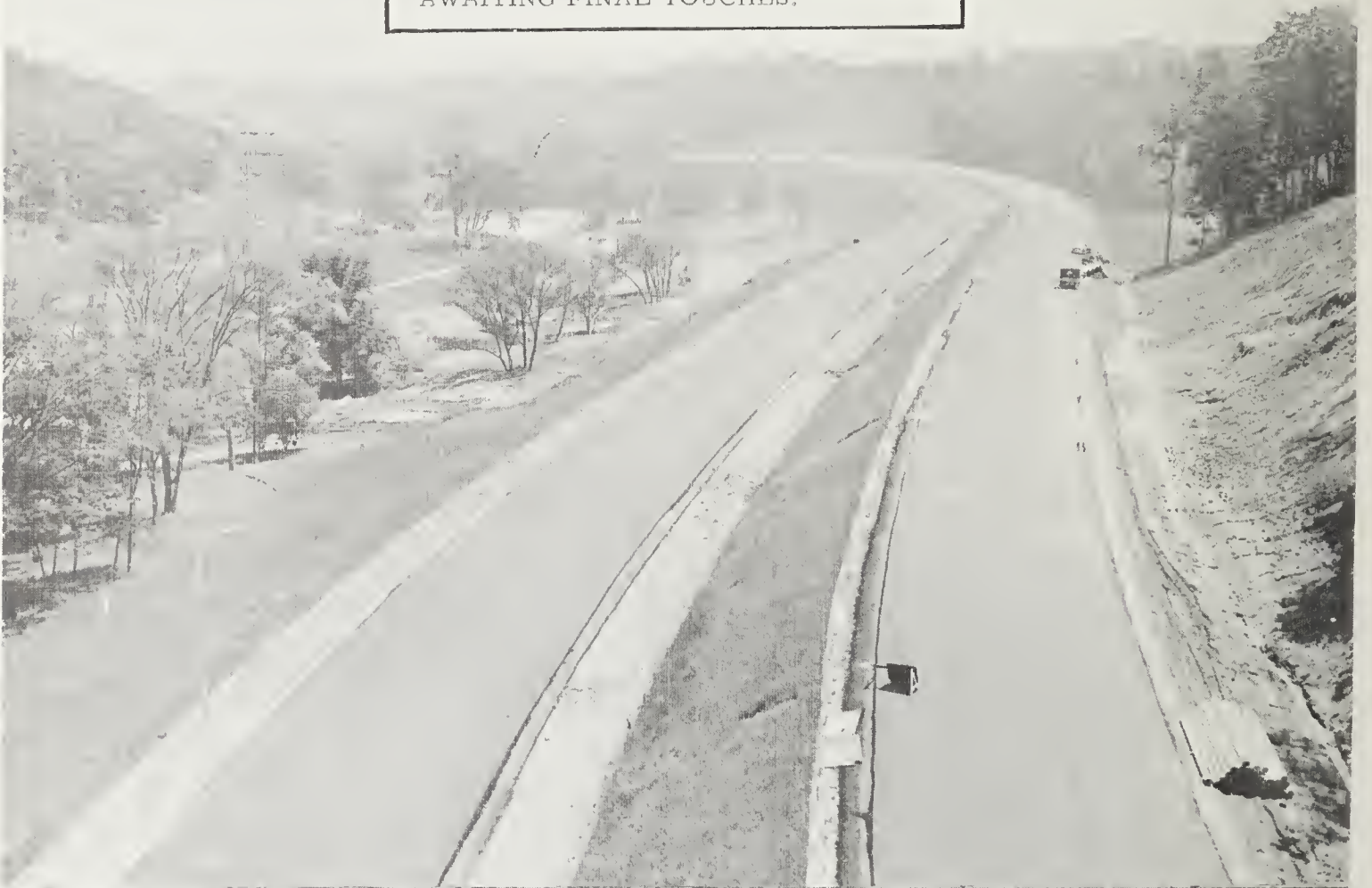
One of the access points is at Rosedale Valley Road, which, itself, had reached such a state of disrepair that it was finally closed to traffic. With the opening of the Bayview Avenue Extension, it was imperative that the pavement on Rosedale Valley Road be reconstructed and opened to Park Road to serve as a proper connector road to the Bloor Street - Davenport Road area.

A further connection, to Carlton Street, is in the study stage.

**A new roadway through
sylvan Rosedale Valley.**



SECTIONS OF DON VALLEY PARKWAY
AWAITING FINAL TOUCHES.



Lawrence Avenue East Extension - On December 7, 1960, another important step was taken towards making Lawrence Avenue one of the most important east-west arteries in the Metropolitan area, when the section between Don Mills Road and Victoria Park Avenue was opened to the public. This was also a related work of the Don Valley Parkway.

Prior to December, 1959, this section was two lanes wide and wandered through the valley with very steep grades and a 10-ton Bailey bridge crossing the Don River. It joined Victoria Park Avenue at a sharp angle, with visibility obscured by the old bridge over the C.P.R.

One year and \$1,750,000 later, motorists were able to travel a straight road, four lanes in width, which connected with the section of the thoroughfare in the Township of Scarborough.

Four structures were involved in this 1.7-mile improvement: an underpass at the C.P.R. main line, a bridge over the Don River, an overpass at the C.N.R., and an overpass to accommodate the Don Valley Parkway, which has not yet been constructed in this area.

Already, 12,000 vehicles are using this new roadway daily, but its true worth will not be realized until the Don Valley Parkway is opened to this point, thus relieving the over-crowded Eglinton Avenue East. It is also expected that the construction of this new roadway will have a marked effect on development of the area through which it passes.



Lawrence Avenue East, facing point of planned Interchange with Don Valley Parkway.

Bayview Avenue
Bridge, North of
Lawrence Avenue

- A major obstacle to the widening of Bayview Avenue was the narrow two-lane bridge over the Don River just north of Lawrence Avenue East. A further factor which condemned the old bridge, constructed in 1918, was that it could only accommodate loads up to 12 tons.

In 1959, a start was made towards replacing the old structure with a modern six-lane bridge. It was decided to construct the north-bound and south-bound sections separately in order that traffic might be maintained throughout the construction period. The north-bound half was opened to traffic on November 3, 1960, and the cost of this portion of the project was \$1,200,000.

In 1961, tenders will be called for demolition of most of the old two-lane bridge and construction of the new three-lane south-bound bridge in the same location.



Completed north-bound half of Bayview Avenue Bridge.

Avenue Road - On December 3, 1960 -- two weeks ahead of
Widening schedule -- all six lanes of the widened
Avenue Road, from Bloor Street to St. Clair
Avenue, were opened to traffic.

Initially proposed by the City of Toronto in 1949, the improvement involved reconstruction of the railway subway at Dupont Street and widening of the pavement.

This thoroughfare was originally developed through a residential district and was the location of many stately homes, many of which, with the years, were converted to small retail stores. It became a traffic artery carrying a daily volume of 33,000 vehicles.

The area was further characterized by the complex network of overhead wires of the Toronto Hydro-Electric System, and congested underground installations requiring relocation included major power or telephone cables, three water mains, two gas mains, the sewer system, drains and water services. The age of these installations caused work to be quite extensive.

Since congestion of buildings restricted the right-of-way, it was decided to place overhead Hydro wires underground.

The project required many property settlements.

The high volume of traffic made it imperative that construction be carried out in a manner so that traffic would be maintained at all times. A system of reversible flow traffic utilizing three lanes of the old roadway was introduced, and roadway construction was scheduled to closely follow relocation of utilities.

The major problem was reconstruction of the subway under the C.P.R. and C.N.R. Rail traffic over this structure was so heavy a detour was unworkable.

The problem was solved with the use of steel rigid frame arches prefabricated and so erected that both vehicle and rail traffic could be maintained during construction. This is probably the longest span of its type in North America.

The south half of the structure was demolished and construction was commenced on it while rail traffic



AVENUE ROAD:-

As it was





..... and as it is.



was using the north half. Operation on the north half was then repeated.

As soon as the eleven steel frames forming the arch were in position, grading of the roadway beneath the structure on the west side of the street was commenced, with traffic diverted to a temporary pavement on the east side of the roadway, consisting of three lanes and used as a reversible-flow traffic system.

The estimated cost of the entire project is \$3, 300, 000.

Lawrence Avenue West - The toll of traffic deaths at the level crossings of the C. P. R. and C. N. R. on Lawrence Avenue West, immediately east of Weston Road, precipitated construction of a subway at this location.

The crossings were particularly dangerous because of restricted vision and heavy rail traffic.

A large amount of preliminary work was necessary before subway construction because of the existence of trunk underground services and utilities.

A six-foot storm sewer tunnel required to be constructed from the site to the Humber River, one-half mile distant. It was blasted through shale rock and lined with concrete. Trunk and local sanitary sewers were also relocated. In addition, telephone conduits, gas and water mains were diverted.

The subway proper consists of two identical concrete bridges. The C. N. R. constructed the structure over its right-of-way, at the expense of the Metropolitan Corporation, and the Department undertook construction of the C. P. R. bridge. Approaches were flanked by retaining walls, because of the existence of industries adjacent to the railways. The road was constructed to carry four lanes of traffic, with elevated sidewalks on each side.

The capital expenditure of the entire project was authorized at \$1, 500, 000.

The subway was opened to traffic on September 1, 1960.



Lawrence Avenue West (Weston)
Previous to and following construction
of Subway at C.P.R. and C.N.R.



The section of Lawrence Avenue West between Keele Street and Jane Street, before improvement, was a two-lane surface-treated road, with steep grades through the Black Creek Valley. The original bridge was only wide enough to carry one vehicle, and the low-lying road through the valley often flooded.

The new roadway, constructed in 1960, consists of four lanes of asphalt surface, with curbs and storm drainage, and fill was placed to a width sufficient to provide for an additional two lanes. The section through Black Creek Valley was raised above flood level. Grades were reduced, which necessitated construction of a retaining wall on the south side of the roadway as it rose out of the west end of the valley.

The Black Creek Bridge was constructed to a six-lane width, of prestressed-precast concrete sections supported on concrete abutments. It was located, and the creek channel shaped, to accommodate the future deepening and channelization of Black Creek. This is to be done to alleviate flooding and locate the channel so that the extension of Highway 400 can be facilitated.

The intersection of Lawrence Avenue West and Keele Street was improved with the construction of left-turn lanes and traffic islands.

Victoria Park - Avenue Replacement of one of the oldest structures in the Metropolitan area, the wooden bridge over the C.P.R. on Victoria Park Avenue -- with its single lane and restricted load limit -- was commenced on July 30, 1958.

The new structure, which was opened to traffic on August 7, 1959, is of steel girder and concrete deck construction, and has a four-lane divided pavement. The original bridge provided space for only two railway tracks, but in the reconstruction, provision was made for two additional lines.

Coincident with the bridge construction, Lawrence Avenue East was diverted at its intersection with Victoria Park Avenue, and, in 1960, the latter roadway was widened from Eglinton Avenue to Highway 401, a distance of 2.8 miles.

Construction cost of the bridge was \$350,000, and \$925,000 for the pavement widening.



Old and new structures on Victoria Park Avenue.



Six Points - The intricate Interchange at the intersection of two
Interchange main east-west traffic arteries, Dundas and Bloor
Streets, and the heavily-trafficked north-south
thoroughfare, Kipling Avenue, which had been in various stages of
planning for some years, was commenced in July, 1960.

The Interchange will take Dundas and Bloor Streets over Kipling Avenue by means of two bridges, a northerly one carrying Bloor and Dundas Streets west-bound traffic and a southerly one to handle east-bound. A third structure will carry west-bound Bloor Street traffic over east-bound Dundas Street traffic.

The project can be described as a directional-type interchange with a partial clover-leaf designed to accommodate through traffic movements unimpeded and non-through traffic with a minimum of left turns.

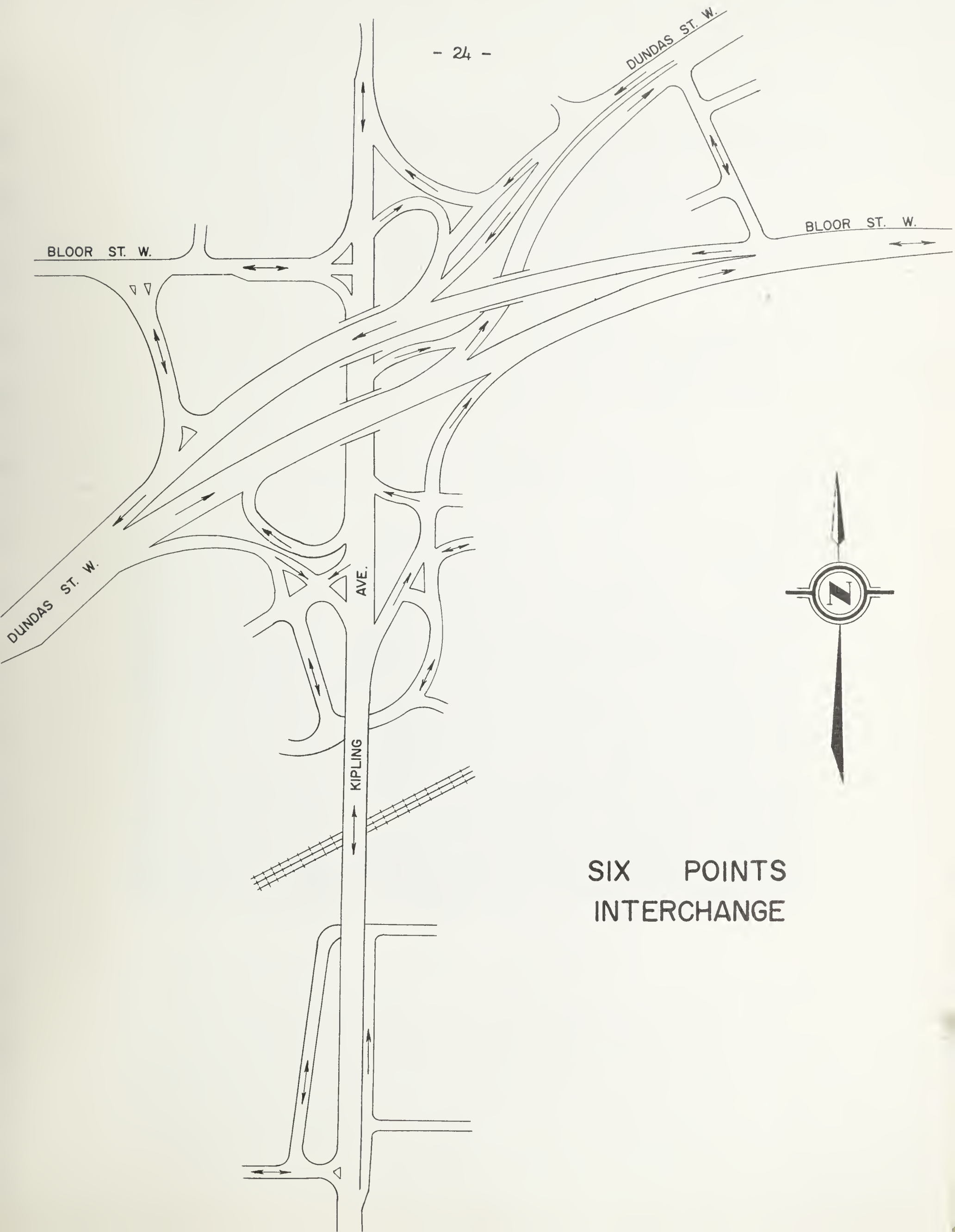
The bridge design incorporates some unusual features, among them a hinge mounting of the abutments to the footings and the deck. The hinge effect is achieved by sets of bars anchored in the footings, crossing at the point of contact between the footing and the abutment and extending diagonally up into the abutments.

The structure of the decks, too, is somewhat unusual. Essentially it comprises a series of sealed, reinforced-concrete boxes, which provide the strength equivalent to the conventional type of structural-steel, reinforced-concrete slab but with a great reduction in weight.

An advantage of the hinged type of structure is the elimination of finger-plate expansion joints and the cutting down on dimensions of abutments, thus reducing the amount of concrete necessary.

Some 2,000 feet of storm sewer were laid in the initial stage of the work. The project will involve about 90,000 cubic yards of common excavation, and a total of 3,800 cubic yards of concrete will be used.

The estimated cost of the Interchange has been set at \$2,900,000 and completion is scheduled for October 31, 1961.



SIX POINTS
INTERCHANGE

Kipling Avenue - Overpass - Early in the design of the Six Points Interchange, it became obvious that severe difficulties would be encountered at its southerly limit, from both a traffic and construction point-of-view, when the proposed grade separation at the C. P. R. south of Bloor Street was commenced. Accordingly, approval was given to its construction simultaneously with the Interchange.

Preliminary study was directed towards a subway, but difficulties which would be presented in providing access to adjacent properties, the high cost of extensive retaining walls, and the need for a pumping station to handle storm water, influenced the decision to construct an overpass.

The design selected is for twin structures of eight spans, abutting, but not physically connected. The total length between abutments is 610 feet, and the longest single span, which is over the track allowance, is 107 feet. The deck is of composite construction, being a reinforced-concrete slab supported on steel girders.

Work commenced in November, 1960, and completion is anticipated about October 31, 1961. Total cost of the project is estimated at \$1,200,000.

Black Creek Bridges - In addition to the bridge on Lawrence Avenue West, three other bridges over Black Creek were replaced in 1960. Two of these were constructed on Jane Street, south of Highway 401 and at Rustic Road, and the third on Wilson Avenue, immediately east of Jane Street.

In each case, the bridges were located so as to accommodate roadway widenings and the deepening and channelization of Black Creek, and the structure at Rustic Road was placed to provide for the extension of Highway 400.

The bridge on Wilson Avenue and the one on Jane Street at Rustic Road consist of a concrete deck over steel girders. The girders rest on concrete abutments which are supported by cast-in-place piles. The bridge on Jane Street, south of Highway 401, is similar except that the concrete abutments were constructed to straddle the existing and future creek channel and are supported on a natural deposit of sand. Roadways at these locations are to be reconstructed following the deepening and channelization of Black Creek to be undertaken under the direction of The Metropolitan Toronto and Region Conservation Authority.

Various - During 1959 and 1960, the congested section of
Pavement Dufferin Street, north of Eglinton Avenue, was
Widenings widened from two to four lanes, with extra widen-
ings and bus bays at major intersections. In
order to effect the widening through the C.N.R. Subway south of
Roselawn Avenue, the sidewalks were removed and pedestrian
tunnels constructed on both sides of the roadway. The section from
Eglinton Avenue to Ranee Avenue was completed in 1959, and from
Ranee Avenue to Wilson Avenue in 1960.

Co-incident with the widening north of Ranee
Avenue a grade separation structure was constructed opposite the
site of the proposed Yorkdale Shopping Centre, to prevent conges-
tion at its Dufferin Street entrance when opened. The cost of this
structure was borne privately.

The total length of the improvement was 2-1/2
miles, and the estimated cost, \$1,600,000.



Widened and improved Dufferin Street.

In late 1960, the Department completed two road
improvements in the Township of Scarborough -- the widening of
the one-mile section of Lawrence Avenue East, between Warden
Avenue and Kennedy Road, and the 1-1/4 mile stretch of Kennedy
Road, between Lawrence Avenue and Eglinton Avenue.

The pavements were widened from two to four lanes, concrete curbs installed, and bus bays provided where possible.

The estimated cost of the combined improvements was \$960,000.



Keeping crews busy as steady stream of mixer trucks deliver concrete on Lawrence Avenue East and Kennedy Road.

The pavement widenings on Lawrence Avenue East and on Kennedy Road were not originally scheduled for completion until 1961. However, with Contractors prepared to proceed on an accelerated basis, the roads were completely closed and the work undertaken for their full width. As a result, the widenings were completed in eleven weeks, or in one-third the scheduled construction time.

Work was completed on the pavement widening of Keele Street, from Eglinton Avenue to Highway 401, a distance of 2-1/4 miles, in 1959. This widening was also to a width of four lanes, and included throat widenings, bus bays and channelizations. A major intersectional improvement was undertaken at the intersection of Keele Street and Wilson Avenue.

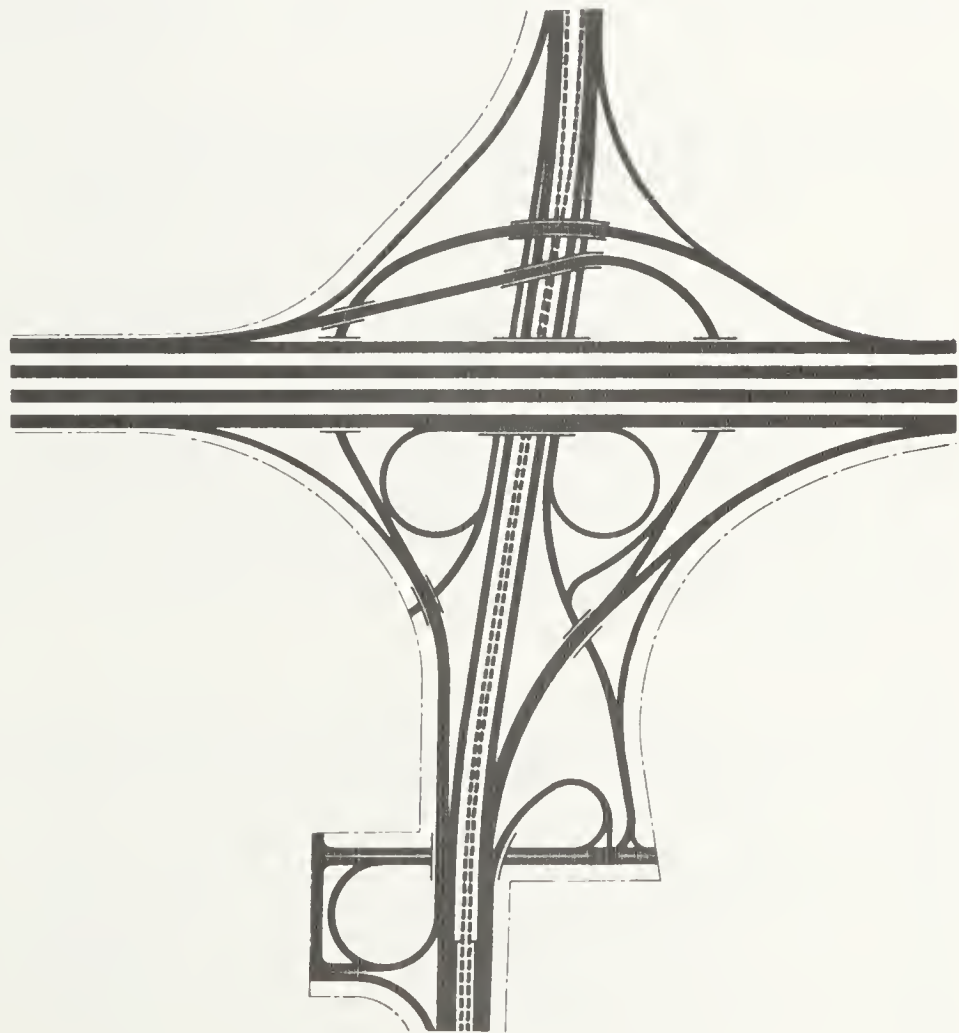
Authorized expenditure was \$1,600,000.

Spadina Expressway - In December, 1959, Council approved the appointment of Consulting Engineers to study and undertake a detailed design of the Spadina Expressway. This study is to be in sufficient detail to determine the estimated costs of the project from the junction of Spadina Avenue and the Frederick G. Gardiner Expressway on the south to Steele's Avenue, with the exception of the section lying within the Township of North York, for which approval had previously been obtained. A capital expenditure of \$500,000 was authorized for this purpose.

It is anticipated that these studies will be completed in 1961.

They have been carried out in co-operation with the Metropolitan Toronto Planning Board and the Department of Highways, and, on the basis of traffic figures obtained, a turboleaf interchange with Highway 401, which will be the first section undertaken, has been designed. Close liaison is also being maintained with the Toronto Transit Commission in the establishment of grades in respect to its rapid transit line, which will occupy the median strip of the Expressway.

It is expected that construction will commence in 1962.



Turboleaf Type
of Interchange
Designed for
Intersection of
Spadina Express-
way with
Highway 401.

- WORKS UNDERTAKEN -

The schedule of works completed in 1959 and 1960 is as follows:

STRUCTURES

1959

Don Valley Parkway	Overpass at Chesterhill Road
- do. -	Overpass at Pottery Road
"	Overpass at Beechview Drive
Frederick G. Gardiner Expressway .	Dufferin Street Underpass
- do. -	Dufferin Gates at C.N.E.
"	Overpass at C.N.R., Riverside Drive
Victoria Park Avenue	Overpass at C.N.R.

1960

Avenue Road	Subway at C.P.R.
Bayview Avenue	Bridge over Don River, Lawrence Avenue
Bloor-Dundas Streets Interchange .	East-bound overpass at Kipling Avenue
Don Valley Parkway	Don Mills Road, over Don Valley Parkway
- do. -	Don Mills Road, over Don River
"	Don Mills Road, over C.N.R.
"	Bridge at Taylor Creek
"	Bridge at east branch of Don River
"	Overpass at Eglinton Avenue
"	Overpass at St. Dennis Drive
Dufferin Street	Underpass at Cartwright Street
Frederick G. Gardiner Expressway .	Garrison Road Bridge
Jane Street	Bridge over Black Creek, south of Highway 401
- do. -	Bridge over Black Creek, at Pelmo Park
Lawrence Avenue East Extension ...	Subway at C.P.R., west of Victoria Park Avenue
- do. -	Bridge at east branch of Don River
"	Overpass at Don Valley Parkway
"	Overpass at C.N.R., east of Don Mills Road
Lawrence Avenue West	Subway at C.P.R., east of Weston Road
- do. -	Bridge over Black Creek, east of Jane Street
Wilson Avenue	Bridge over Black Creek, east of Jane Street

In addition to the foregoing, the C.N.R. constructed a Subway on Lawrence Avenue West, east of Weston Road, at the expense of Metropolitan Corporation.

NEW ROADS

1959

Bayview Avenue Extension	Queen Street to Moore Avenue ..	Mile- age 3.50
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1960

Don Valley Parkway	Lawrence Avenue East Extension, from C.N.R. to Victoria Park Avenue	1.29
- do. -	Relocated Don Mills Road	.81

EXISTING ROADS RECONSTRUCTED

1959

Rosedale Valley Road	Park Road to Bayview Avenue	1.25
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1960

Don Valley Parkway	Lawrence Avenue East, from Don Mills Road to C.N.R.	.43
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PAVEMENT WIDENINGS

1959

Bathurst Street	Ellerslie Avenue to Finch Avenue ...	.62
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1960

Avenue Road	Bloor Street to St. Clair Avenue ...	1.32
Dufferin Street	Eglinton Avenue to Wilson Avenue ...	2.50
Keele Street	South limit of Township of North York to Highway 401	1.70
Kennedy Road	Eglinton Avenue to Lawrence Avenue .	1.42
Kipling Avenue	New Toronto Street to Birmingham Street	.25
Lawrence Avenue East	Ainsdale Road to Kennedy Road	.85
Millwood Road	Leaside Bridge to C.P.R.	.50
Victoria Park Avenue	Eglinton Avenue to Highway 401	2.80

RESURFACING OF PERMANENT PAVEMENTS

1959

Bloor Street West	Oakmount Road to Spadina Avenue	3.25
Danforth Avenue	Broadview Avenue to Jones Avenue ...	1.00
Dundas Street	Dovercourt Road to Lansdowne Avenue.	.75
Eglinton Avenue East	Elmsthorpe Avenue to Mt. Pleasant Road	1.80
Jane Street	Bloor Street to Dundas Street	1.00
Kingston Road	C.N.R. to Flerimac Road	1.00
Lake Shore Road	Humber River to Mimico Creek	1.00
- do. -	32nd Street to Etobicoke Creek	.75
Royal York Road	Lake Shore Road to C.N.R.	.50
Spadina Road	Dupont Street to Davenport Road	.25
Vaughan Road	St. Clair Avenue to Dufferin Street.	2.00

1960

Bloor Street West	Jane Street to Runnymede Road	.50
Eglinton Avenue West	Caledonia Road to Oakwood Avenue ...	1.00
Kipling Avenue	New Toronto Street to The Queensway.	1.25
Mt. Pleasant Road	Eglinton Avenue to Lawrence Avenue .	1.25
Old Weston Road	St. Clair Avenue to Davenport Road .	.25
St. Clair Avenue West	Runnymede Road to Scarlett Road	.75
- do. -	Bathurst Street to Dufferin Street .	1.25
Weston Road	Wilson Avenue to Irwin Road	1.25
Woodbine Avenue	Eastwood Road to Cassels Avenue	.25

RESURFACING OF GRAVEL ROADS

1959

		<u>Mile- age</u>
Bathurst Street	Finch Avenue to Steele's Avenue ..	1.25
Kipling Avenue	Six Points to Highway 401	4.00
Lawrence Avenue East	Markham Road to Orton Park Road ..	1.00

1960

Finch Avenue	Dufferin Street to Keele Street ..	1.25
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INTERSECTIONAL IMPROVEMENTS

1959

Bayview Avenue, at Blythwood Road
 - do. - at Moore Avenue
 Bloor Street West, at Prince Edward Drive
 Eglinton Avenue East, at Mt. Pleasant Road
 - do. - at Bayview Avenue
 " at Brentcliffe Road
 " at Kingston Road
 Jane Street, at Trethewey Drive
 Kennedy Road, at Ellesmere Avenue
 Kingston Road, at C.N.R. Overpass
 - do. - at Lawrence Avenue
 Lake Shore Boulevard West - Strachan Avenue to Bathurst Street
 Lawrence Avenue East, at Markham Road
 Wilson Heights Boulevard, at Sheppard Avenue

1960

Bathurst Street, at Queen Street
 - do. - at King Street
 Eglinton Avenue East, at Leslie Street
 - do. - - Sloane Avenue to Jonesville Avenue
 " at Pharmacy Avenue
 " at Kennedy Road (2)
 " at Midland Avenue
 " at Markham Road
 Keele Street, at Yore Road
 Kingston Road, at Celeste Drive
 Kipling Avenue, at Horner Avenue
 - do. - at Evans Avenue
 " at Rathburn Road
 Lawrence Avenue East, at Brimley Road
 Lawrence Avenue West, at Bathurst Street
 Wilson Avenue, at Bathurst Street

MAJOR REPAIRS TO BRIDGES

1959

St. Clair Avenue East	East of Yonge Street
Mt. Pleasant Road	North of Blythwood Road

1960

Old Weston Road	C.P.R., north of Dundas Street
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WIDENING OF OVERPASS

1959

Kingston Road At C.N.R.

The following works were under construction as of December 31, 1960:

ELEVATED STRUCTURE

Frederick G. Gardiner Expressway .. C.N.E. to Spadina Avenue

STRUCTURES

Bloor-Dundas Streets Interchange ..	West-bound overpass at Kipling Avenue
- do. - ..	West-bound overpass at Dundas Street
Kipling Avenue	Overpass at C.P.R., south of Bloor Street

NEW ROADS

Don Valley Parkway Royal Drive to Eglinton Avenue

PAVEMENT WIDENING

Lawrence Avenue West Keele Street to Jane Street

MAJOR REPAIRS TO BRIDGES

Bloor Street Prince Edward and Rosedale Viaducts

-- SUMMARY --

<u>Works Completed</u>	<u>1959</u>	<u>1960</u>
Structures	7	22
New Roads	3.5 miles	2.1 miles
Existing Roads Reconstructed	1.25 "	.43 "
Pavement Widenings	2.40 "	9.56 "
Resurfacing of Permanent Pavements	10.50 "	9.75 "
Resurfacing of Gravel Roads	6.25 "	1.25 "
Intersectional Improvements	15	16 "
Major Repairs to Bridges	2	1
Overpass Widened	1	-

Works Under Construction, December 31, 1960

Elevated Structure	1.39 miles
Structures	4
New Roads	5.25 "
Pavement Widening	1.20 "
Major Repairs to Bridges	2

Prince Edward and Rosedale Viaducts - An item was included in the Capital Roads Program in an amount of \$1,200,000 for the replacement of decks, sidewalks and deteriorated structural steel on the Prince Edward and Rosedale Viaducts on Bloor Street East.

Inspection of the structures disclosed that the application of Winter road salt had accelerated general deterioration and that leaching of saline solution throughout the decks had caused corrosion of steel work and spalling of concrete.

The structures carry 10,000 street car passengers per hour at peak periods, in addition to 38,000 vehicles per day, and have been in continuous service since November, 1918.

It was decided to undertake the renovations on the south side of the structures in 1960 and the north side in 1961.

The concrete deck to be removed varied in thickness from 12 to 14 inches, having a bottom reinforcement of 5/8-inch square twisted bars at 7-inch centres laid across the deck and distribution steel 1/2-inch square twisted bars at 18-inch centres. The top was reinforced with heavy-expanded metal fabric.

The contract was priced on the basis of the Contractor using compressors and breaking-hammers to break the deck into sections convenient for removal. Sidewalk was broken away from the parapet wall by hammers and lifted out in pieces. Two longitudinal tracks, varying in width from 6 to 12 inches, were then cut in the deck. The first severed the roadway from the lower street-car deck, while the second bisected the roadway into 10-foot strips. Following this, "V" grooves, penetrating approximately one-third of the depth in concrete, were cut transversely at 7-foot intervals. Reinforcement was cut with a torch



Snapping section



Deck ready for lifting

and, using a short beam gradall equipped with a single-tooth ripper, exerted a pull which snapped the six-ton blocks of concrete and pushed them forward on the beams for removal. About 200 lineal feet of deck was broken in a typical 16-hour working day. Removal of the concrete blocks was undertaken at night to minimize interference with street cars.

A problem was presented with the possibility of concrete falling on the Bayview Avenue Extension, railways and high-tension tower lines. A working platform, covered with tarpaulins to prevent small pieces dropping through, was erected for a length of 1,800 feet at a point 5 feet below the beams.

The renovated deck reduced the sidewalk width from 10'9" to 8'0", which permitted 12-foot traffic lanes.

The new deck has a minimum thickness of 8 inches. Construction joints were sealed by three-ply application of glass fibre bonded with asphalt and is waterproofed with a 1/4-inch coat of hot-applied rubberised mastic asphalt. Expansion plates are hot-dipped galvanised and recessed at the curbs to prevent damage by snow ploughs.

Work on the south roadway commenced on June 8, and it was open to traffic 17 weeks later. The north roadway was kept open during construction, and complete street-car operation was maintained throughout the undertaking.

When the Prince Edward Viaduct was designed by City Engineers, the day was foreseen when a rapid transit system would operate on Bloor Street, and, accordingly, provision was made to accommodate it at a level below the viaduct deck. The Toronto Transit Commission proposes to use this structure for its Bloor-Danforth Subway, and advantage was taken by them of the deck opening in order to undertake the preliminary work on their project.



Forming deck



Ready for concreting

- MAINTENANCE -

The maintenance program of the Department, apart from normal routine, continued, in 1959 and 1960, to follow a pattern of placing emphasis on overcoming the back-log of pavement resurfacing and bridge repairs.

This program fell into the following categories -

Resurfacing of Pavements - The asphalt surfacing of gravel roads, widening of shoulders and reditching of the two-lane rural roads was virtually completed, and attention shifted to reconstruction of four-lane curbed urban streets. Some of the latter pavements had not had a complete resurfacing since their construction.

Repair of Bridges - The deterioration of concrete bridges due to the action of road salt used in Winter maintenance required that consideration be given to extensive repair work on older structures. The program of repairing one major bridge a year was continued, but it was becoming evident that this would require to be accelerated to keep pace with essential repairs.

Intersectional Improvements - Many major items of this type have been completed, but the need for throat widenings and channelizations at congested intersections is becoming more manifest. Accordingly, it is planned to continue their construction as part of the roads improvement program.

The City of Toronto continued to maintain services, on a work-order basis, within its limits, with two minor changes. In 1959, Metropolitan Council directed that resurfacing contracts, which had heretofore been undertaken by the City, were, in future, to be called and supervised directly by the Department of Roads. Also, in that year, by arrangement, the maintenance of boulevards and trees on Metropolitan roads within the City was transferred from the City's Department of Parks and Recreation to the Metropolitan Parks Department.

Following this, the Metropolitan Parks Department undertook the maintenance of boulevards on all expressways and major interchanges in the suburban area municipalities.

A comparison of the proportion of maintenance responsibility of the Department is reflected in the following:-

By work order		37%
By contract		34%
By Departmental forces		29%

The matter of cleaning Metropolitan roads was a subject of discussion during the two years covered by this report, and on April 5, 1960, Metropolitan Council requested all Area Municipalities to clean Metropolitan roads in their respective municipalities, to their own standard and at their expense, excepting controlled-access expressways and Bayview Avenue Extension, after January 1, 1961.

Both 1959 and 1960 were characterized by unusual Winter conditions, which taxed maintenance operations.



Belt-loading the fall of the night before.

The 1959-60 season was particularly severe. It started with a major snow-storm on November 26 and, with the last on April 5, a total snow-fall of 83.1" had been recorded, the greatest since 1882-3. There was also a record rainfall of 14.64" during this period, which resulted in three intense ice-storms in late December and early January, causing havoc by fallen trees and power lines. The worst snow-storm in 16 years began in the early afternoon of February 26 and, when it had ceased the following morning, a total of 13.5" had fallen. Because of the severity of the Winter, \$2,275,000 was expended by the Department on Winter maintenance from November 1, 1959, to April 15, 1960.

Damage to concrete and automobile bodies attributed to the extensive use of road salt for Winter maintenance, which has become a matter of growing concern throughout the country, was given special consideration.

In order to protect concrete from the action of salt, a number of additives to the concrete mix and application to finished concrete have been tried. The most inexpensive process, which seems to give as much protection as any, is an application of boiled linseed oil mixed with an equal volume of coal oil sprayed on the concrete in two applications after the concrete is cured. In the Fall of 1960, approximately ten miles of curbing and several structures were treated in this manner.

With respect to the corrosion of automobiles, the Roads and Traffic Committee, on October 31, 1960, authorized an experiment to determine the effectiveness of an additive to salt as an inhibitor of its corrosive action. The Ontario Research Foundation was engaged to conduct the experiment for the Department. The experiment, which was set up on vacant property on Lake Shore Boulevard East, consisted of three rigs, each composed of a motor turning four car wheels in a circle at the end of 10-foot arms. On the fender over each wheel were suspended the small samples of automobile body steel to be subjected to corrosive conditions and tested for rusting. The experiment was ready to start early in January, 1961, and it is expected to have some interesting results at its conclusion.

Services of Contractors were used on maintenance operations wherever advantageous so to do. Contracts generally were called on a unit-cost basis, but some cost-plus work was undertaken. Winter maintenance on all Metropolitan roads outside the City, with the exception of a few miles of secondary roads, was covered by contract.

In 1960, permanent repair of pavement cuts made for installation or repair of underground services was undertaken by contract for the first time.

Numbers of maintenance contracts called were as follows:-

	<u>1959</u>	<u>1960</u>
Resurfacing	12	8
Intersectional Improvements	3	4
Bridge Maintenance	1	1
Winter Maintenance	4	4
Cut Repairs	-	2
Loading Platforms	-	1
Parking Areas (for Parks Department)	-	2

In 1959, Yard No. 5 , On North Queen Street, west of Highway No. 27, to serve the south-west area, was established, and a maintenance building constructed at a cost of \$40,000.

Machinery purchases were limited mainly to replacement of trucks. For the most part, equipment requirements were filled by rental of machines on an operated basis.



New Maintenance Building, Yard No. 5

- GENERAL -

Grade Separation Program - In 1958, The Railway Act, R.S.C., was amended whereby contributions from The Railway Grade Crossing Fund were increased to provide for 80% of the construction costs, to a limit of \$500,000, of a new structure to eliminate a level grade crossing, and 50% of the cost, with a limit of \$250,000, in the case of reconstruction or improvement of an existing grade separation.

In view of these increased contributions by The Board of Transport Commissioners for Canada, a review of the program of grade crossing eliminations was presented to Council in May, 1959. It is proposed that four major grade separation projects be undertaken each year.

Contributions on this account covering 1959 and 1960 construction were -

	<u>Railway Grade Crossing Fund</u>	<u>Railways</u>
<u>Received</u>	\$	\$
Bayview Avenue Extension (interim)	442,627	10,000
Kingston Road Bridge Widening	65,759	-
Victoria Park Avenue Overpass	168,382	29,450
<u>Pending</u>		
Avenue Road Subway	250,000	45,000
Don Valley Parkway	80,000	-
Lawrence Avenue East Extension	85,000	8,000
Lawrence Avenue West Subway	1,000,000	50,000

Mileages of Metropolitan Roads - As of December 31, 1960, the mileage of the Metropolitan Roads System was as follows:-

Mileage originally assumed	276.50
Mileage since assumed	24.05
Mileage reverted to Area Municipalities	<u>2.42</u>
Mileage of new roads constructed and opened to traffic ..	<u>7.94</u>
Mileage of Metropolitan Roads System as of December 31, 1960	<u>306.07</u>

Property
Acquisition

-

The following amounts have been paid for the acquisition of properties in connection with the roads construction program:-

\$

1954	-	100,215
1955	-	1,275,691
1956	-	2,490,075
1957	-	1,161,562
1958	-	2,492,297
1959	-	2,306,525
1960	-	7,843,333

These amounts represent approximately 18% of the total capital expenditures for the same seven years.

In property negotiations, it has been found that the vast majority of owners are quite reasonable in representations to arrive at a fair and amicable settlement, but there is the minority which can be settled only by arbitration. At the last count, only about 2% of all cases required to be settled in this manner.

In April, 1959, Metropolitan Council authorized the establishment of a Property Sales Committee, whose function it is to dispose of parcels of lands purchased but which are surplus to requirements.

Also, properties which have been purchased well in advance of the date of their requirement are, on occasions, rented on a month-to-month basis.

Because of the foregoing, the figures above indicate property expenditures after recoveries.

In the interests of public relations, the Department, in 1960, prepared a guide book to property owners, "Roads Property Acquisition and You." These are distributed, house-to-house, previous to a land survey crew commencing its work in a neighborhood, and furnish answers to questions most commonly asked by owners who believe their property may be expropriated for road purposes.

Park Lands - In the construction of the Frederick G. Gardiner Expressway and the Don Valley Parkway, it was necessary to extensively utilize park lands vested with the City of Toronto.

In initial discussions concerning these lands, the City proposed that replacement be on the basis of acre-for-acre, but, in pursuing the question, it became obvious that this type of settlement would be impractical. Ultimately, an agreement was reached whereby the Metropolitan Corporation would undertake certain works which would permit the City to extend its parks system in one area. The City, at the same time, gave its total acreage in another area, provided that any surplus land of this latter area would be maintained as park land and a green belt.

The Metropolitan Corporation has undertaken obligations such as construction of a new retaining wall and an extension of sewers in front of the Canadian National Exhibition grounds, which will make possible the creation of a considerable acreage of land by fill. The cost of this work is estimated at approximately \$2,550,000, and will fulfill the Corporation's obligations with respect to lands acquired from the City for the Frederick G. Gardiner Expressway and the Don Valley Parkway.

The Department also reconstructed the Dufferin Gates to the Exhibition Grounds, and a Works Building for the C.N.E. Works Department to replace shops demolished because of their being on the line of the Expressway. Further undertakings will be the raising of the level of the East Riverdale Flats, relocate Millen Stadium there, reconstruct the bleachers, construct a lavatory building, two pedestrian overpasses and an access road.

Lighting - In 1958, Metropolitan Council adopted a policy that the Corporation would assume responsibility for the lighting only of Controlled-Access Expressways forming part of the Metropolitan roads system.

In 1959, the policy was broadened whereby the Corporation agreed to undertake the installation of lighting for grade-separated street intersections, but the Area Municipality concerned is to assume this as part of their street lighting system and pay the maintenance charges.

Further consideration was given in 1960 in respect to the subject of lighting installations at subways and overpasses. In this consideration, it was felt that if lighting exists on a



Creating and Improving Park Areas by Fill Operations
in lieu of Park Lands Surrendered for Road Purposes.

Above: At C.N.E. Waterfront
Below: At East Riverdale Flats



street, and a structure is built at either a railway crossing or a river, lighting on the approaches would, in all likelihood, require to be altered for construction and would form part of the construction cost. In cases where no lighting exists on a street, and the new structure must be lighted, it becomes an integral part of the structure and must be considered as a cost directly related to it.

It was decided that, since each structure must be considered in its own circumstances, no definite policy be established and that lighting of subways and overpasses be considered with an Area Municipality at the time a structure is being designed.

Geodetic Survey - Engineers of certain Area Municipalities were becoming increasingly aware of, and concerned with, discrepancies in the system of bench marks in their areas, and the Commissioner of Works of the Township of Scarborough convened a meeting of interested representatives to discuss the question.

Consequent upon this discussion, a recommendation was presented to and adopted by Metropolitan Council in November, 1958, which authorized the Department of Roads to establish an over-all system of bench marks in the Metropolitan area to which the elevations of all roads, sidewalks, sewers, water mains, buried cables, bridges, etc., could be referred.

The Precise Levelling Section of Geodetic Surveys of Canada, Ottawa, was consulted regarding the proposal and agreed to undertake the work. The estimated cost of establishing first-order bench marks and to set additional bench marks along Metropolitan roads was \$35,000.

In the course of this undertaking, commendable co-operation was shown by public and private concerns in permitting the attachment of some 250 three-inch bronze tablets to their buildings for use as reference points. In addition, the elevation of some 45 existing bench mark tablets was either confirmed or revised.

As soon as possible in 1961, it is intended that all pertinent information be assembled and prepared in book form for permanent reference. It is proposed that all interested Public Departments and Utilities be furnished copies gratis. A nominal charge would be made to private professional organizations.

As this project nears completion, all who will benefit so much by its implementation express their appreciation to Mr. J. E. Lilly, Dominion Geodesist, and his staff for a good job well done.

The next step, to establish a horizontal control system, of a co-ordinate type, for the 240 square miles comprising the Metropolitan area, similar to the vertical control system provided by the bench marks, was approved by Metropolitan Council. It is to become an integral part of the horizontal control system of the Province of Ontario as proposed by the Association of Ontario Land Surveyors, to which property boundaries and utility locations are to be referred.

The Dominion Geodesist agreed also to undertake the framework for the system of horizontal control.

Twenty-two points were selected for the location of first-order triangulation survey stations, and, as 1960 closed, endeavors were being made to acquire easements on prominent heights of land and buildings for the station sites. From towers on these sites it will be possible to sight to and measure the distance and angle to other survey stations. This is to be accomplished by locating electronic surveying instruments and a first-order theodolite atop the towers and high buildings.

When each new major construction project commences, it will be related to these triangulation stations, thus relating projects one to the other and all to a common network.

Transportation Research <u>Program</u>	- In April, 1960, Council adopted a recommendation of the Commissioner of Planning dealing with a Program of Transportation Research. The terms of reference for the study were to develop a high-speed electronic computer process to determine the expected usage of each section of each traffic facility -- expressway, transit or commuter line, street or road -- and predict for an average day and peak hour of any given year, where, why, when, how and by what route person vehicle trips are made in relation to any set of conditions which would influence these travel decisions.
--	--

By the end of 1961, it is expected the program will have produced an estimate of the traffic load which is to be expected in 1980 on each link of the system of traffic facilities provided for in the Draft Official Plan for the Metropolitan Toronto Planning Area if land use, population, employment, etc., will be distributed as provided in the Plan. This will show which links are likely to be adequate, overloaded or overdesigned.

Development of the study was estimated at two years.

Metropolitan Toronto - This Committee, organized in 1954,
Public Utilities continues to actively function and
Co-ordinating Committee broaden its activities, with 26 member
 organizations, representing Area
Municipalities, public and private Utilities. Technical operation is
centered in the office of the Chief Design Engineer of the Metro-
politan Department of Roads.

Membership is completely voluntary,
and close association is maintained with a similar Committee,
which operates within the City of Toronto and after which it is
fashioned.

Meetings are held regularly, and the
Committee acts as a medium of co-operation between its member
organizations in the matters of location, construction and mainten-
ance of utility installations.

It considers questions of material
interest in the operation of services. Area plans are being pro-
gressively prepared indicating utility locations, which are and will be
a reliable source of reference in planning, construction and repair.
In the event of an emergency which might cause a major dislocation of
services they would be of inestimable value.

Sub-Committees, from time to time, are
appointed to consider questions common to the respective respons-
ibilities of the member organizations, and the application of those who
undertake these studies is commendable. Their efforts presage so
much for the future.

One sub-committee has been set up
to deal with the question of providing accommodation for expansion
of services on road allowances. Provincial legislation is being
sought, through this sub-committee, to enable Utilities to use
future widths of road allowances and setbacks, where necessary,
not only for their accommodation but to maintain minimum clear-
ances between them for safety and economy of construction and
maintenance.

When the Committee was established,
Colonel F. S. McPherson, who, at that time, was Supervisor of
Right-of-Way of The Bell Telephone Company of Canada, assumed
the responsibility of acting as its Secretary. In April, 1960, he
retired from active Engineering practice. He was, however, pre-
vailed upon to continue in office, and it is the hope of all members
that his fund of knowledge will be available to them for many years
to come.

Sign Regulations - From time to time during 1959 and 1960 consideration was given to sign regulations. The Metropolitan Corporation has the power to prohibit and regulate signs and other advertising devices which project over, or are located on private property within 150 feet of a Metropolitan road.

To the end of 1960, by-laws had been passed prohibiting signs within 150 feet of the following roads with certain exceptions:-

Eglinton Avenue East	-	between Jonesville Crescent and Brentcliffe Road
Lake Shore Boulevard East	-	between Leslie Street and Woodbine Avenue
The Queensway	-	between Park Lawn Road and Roncesvalles Avenue

A similar by-law is pending respecting Bayview Avenue Extension and the Don Valley Parkway.

A further by-law was passed prohibiting the erection of overhanging signs on Avenue Road, between College Street and Lawrence Avenue, and requiring that existing ones be removed by December 31, 1963. Facial signs will be permitted.

Permits - Permits were granted, as follows, in respect to applications submitted by Area Municipalities and Public Utilities:-

	<u>1959</u>	<u>1960</u>
Erection of Signs	299	359
Installation of Services on Roads	1436	1746
Locations of Buildings and Structures adjacent to Metropolitan Roads	423	310

In addition to the foregoing, numerous approvals were granted for various encroachments, entranceways, culverts, and moving operations involving heavy loads.

To the Municipality of Metropolitan Toronto
Department of Roads

Dear Sir:

May I ask you to be so kind as to let me know what are the requirements for Road Stone in Ontario, as you have to consider rather severe climatic conditions in Canada?

Are these requirements analogous to those of the D.S.T.M. or you have to increase them because of Northern climate?

Here we have Leningrad on the 60° and Moscow on the 55°, but it seems that you can enjoy in Toronto privileges of a southern situation?

I am truly yours

Engineer *V. Nekrasov*

My address: U.S.S.R. Moscow B-62, Podsozensky 18, 6
Engineer V. Nekrasov

Liaison With - Improvements and reconstruction undertaken
Department of by the Department of Roads on former
Highways, Ontario King's Highways assumed as part of the
 Metropolitan Roads System, and for which
the Department of Highways agreed, in 1956, to assume the entire
costs, were virtually completed by the end of 1960.

The last major contribution on this account was in an amount of \$685,779, which was in connection with the Six Points Interchange, and which represented the estimated cost of a traffic circle the Province had on its planning boards when the three thoroughfares comprising this complicated intersection were assumed as Metropolitan roads.

To the end of 1960, the Province had reimbursed the Corporation in an amount of \$6,342,521 under this arrangement. There remains now but a few property settlements to make.

The Metropolitan Corporation continues to receive a subsidy from the Province of 50% on eligible expenditures related to roads improvement and maintenance. The Department of Highways, in addition, has agreed to contribute 75% of the cost of aspects of the Transportation Research Program dealing with movement of vehicular traffic only, provided they are furnished with a full report of the study findings, and a further \$10,000 towards the cost of the Salt Corrosion Study by the Department of Roads.

Officials of the Department of Highways also continue to evidence a deep interest in the development of the Metropolitan Roads System, and maintain a close liaison with the Department of Roads in all questions common to the two authorities.

In September, 1960, Mr. N. M. Cooke, who had been the District Municipal Engineer of the Department of Highways for the Metropolitan Area, almost since the inception of the Metropolitan Corporation, retired. It is particularly desired here to express appreciation to Mr. Cooke for the excellent co-operation so freely tendered by him in all matters concerning the Metropolitan Department of Roads.

SUMMARY OF EXPENDITURES

AND OF

CONTRACTS AWARDED

- SUMMARY OF EXPENDITURES -

<u>Capital Projects</u>	<u>1959</u>	<u>1960</u>
	\$	\$
Avenue Road - Pavement Widening and Subway; Bloor Street to St. Clair Avenue	499,038	1,780,058
Bathurst Street - Pavement Widening; Sheppard Avenue to Steele's Avenue	177,676	126,232
Bayview Avenue - Grading, Paving and Bridge over Don River; Blythwood Road to Steele's Avenue	273,928	903,829
Bloor and Dundas Streets and Kipling Avenue (Six Points) Interchange	-	872,770
(Expenditure shown is in addition to initial cost of \$685,779 borne entirely by the Department of Highways, Ontario.)		
Don Valley Parkway and related works:		
Bayview Avenue Extension	803,146	122,099
Don Valley Parkway	4,367,261	3,430,749
Lawrence Avenue East Extension	49,965	1,657,409
Rosedale Valley Road	29,092	7,843
Don Mills Road;		
Grade Separation - C.P.R., north of Eglinton Avenue East	5,754	-
Dufferin Street - Pavement Widening; Eglinton Avenue to Wilson Avenue	908,952	563,725
Dundas Street West, Royal York Road and C.P.R. Grade Separation	17,419	21,042
Eglinton Avenue East Projects:		
Extension from Bessborough Drive to Victoria Park Avenue	11,207	442
Pavement Widening from Bessborough Drive to Laird Drive	200	250
Pavement Widening from Victoria Park Avenue to Kingston Road	1,772	5
Grade Separation - C.N.R., Bellamy Road	5,847 Cr.	55,708
- do. - C.N.R., Kennedy Road	2,158 Cr.	288,900
Eglinton Avenue West Expressway	-	76,064
Frederick G. Gardiner Expressway	4,155,761	12,290,141
Easterly Extension of Frederick G. Gardiner Expressway	182,086	181,105
Jane Street - Pavement Widening and Bridges; Weston Road to Wilson Avenue	10,677	289,283

cont'd

	<u>1959</u>	<u>1960</u>
Jane Street - Grade Separations; C.N.R. and C.P.R., south of Trethewey Drive	\$ 2,183	\$ 205,814
Keele Street - Pavement Widening; South limit of North York to Sheppard Avenue	487,033	66,687
Kennedy Road and Danforth Road - Pavement Widening; Danforth Road to Steele's Avenue, and Danforth Avenue to Kennedy Road, respectively	-	383,737
Kipling Avenue - Bridge over Mimico Creek	12,595	837 Cr.
Kipling Avenue - Grade Separation; C.P.R., south of Bloor Street	3,454	231,008
Kipling Avenue - Pavement Widening; The Queensway to Dundas Street	11,416	-
Lawrence Avenue East - Widening, Paving and Bridges; Victoria Park Avenue to Kingston Road	155,623	336,190
Lawrence Avenue West - Subway at C.N.R. and C.P.R. (Weston)	548,019	610,960
Lawrence Avenue West, Scarlett Road and Dixon Road; Pavement Widening	12,781	75
Lawrence Avenue West - Widening; Yonge Street to Weston Road	82,178	536,190
Markham Road - Overpass at C.N.R., north of Eglinton Avenue	-	1,164
Pape Avenue - Grade Separation at C.N.R., north of Dundas Street	6,680	9,935
Prince Edward and Rosedale Viaducts - Repair	-	483,763
The Queensway (Queen Street West Extension)	23,576	225,857
The Queensway, at Parklawn Road - Intersectional Improvement	13,417	257
Spadina Road Expressway	8,163	165,481
Victoria Park Avenue - Overpass at C.P.R.	144,589	664
Victoria Park Avenue - Pavement Widening; Eglinton Avenue o Sheppard Avenue	370,821	545,087

cont'd

	<u>1959</u>	<u>1960</u>
	\$	\$
Wilson Avenue - Widening; Yonge Boulevard to Weston Road	1,353	111,548
Yard Land and Buildings	<u>96,778</u>	<u>5,699</u>
	13,466,588	26,586,933
Under Construction by City of Toronto on Metropolitan Roads, when assumed, and Completed at Expense of Metropolitan Corporation	181,728	852
Former King's Highways (detailed below)	<u>209,778</u>	<u>628,314</u>
Total Capital Expenditures	<u>13,858,094</u>	<u>27,216,099</u>

Capital Projects on Former King's Highways Initiated and Undertaken by the Metropolitan Department of Roads, of which the Department of Highways, Ontario, assumed 100% of the Costs.

Bloor Street West - Pavement Widening; Royal York Road to Dundas Street	37,797	36,676
Bloor Street West Subway; C.P.R., at Islington Avenue	4,370	6,033
Bloor and Dundas Streets and Kipling Avenue (Six Points Interchange)	123,839	556,581
Dundas Street West - Pavement Widening; Bloor Street to Highway 27	-	9,706
Lake Shore Road - T.T.C. Subway at C.N.R.	-	4,378
The Queensway - Pavement Widening; Dillon Avenue to Highway 27	28,820	14,700
Yonge Street - Pavement Widening; North City Limit to Highway 401	<u>14,952</u>	<u>240</u>
	<u>209,778</u>	<u>628,314</u>

<u>Current Expenditures</u>	<u>1959</u> \$	<u>1960</u> \$
Administration	364,609	369,238
Roadway Maintenance	2,388,337	2,196,823
Bridge Maintenance	277,259	172,177
Winter Maintenance	1,502,475	1,900,009
Cleaning Roads (Flushing excluded)	709,678	611,538
Road Signs	8,838	10,019
Intersectional Improvements and Special Items	689,735	714,971
Lighting, Major Roads	12,373	19,256
Passenger Loading Platforms	14,079	26,846
Renaming and Renumbering of Streets	-	5,236
Machinery and Equipment - Purchases	39,519	64,366
- do. - - Operation and Maintenance	54,296	67,633
Sundry - including Yard Operation, Insurance, and Employees' Fringe Benefits	101,197	108,775
Survey of Capital Works	98,950	18,275
Totals, Current Expenditures	<u>6,261,345</u>	<u>6,285,162</u>
<u>SUMMARY</u>		
Total Capital Expenditures	13,858,094	27,216,099
Total Current Expenditures	<u>6,261,345</u>	<u>6,285,162</u>
Total Expenditures, Gross	<u>20,119,439</u>	<u>33,501,261</u>
<u>Subsidies and Contributions</u>		
Province of Ontario - Statutory Grants	6,569,673	12,261,469
Government of Canada - Grade Crossing Elimination Fund	300,000	2,026,009
Railways and Area Municipalities	<u>10,000</u>	<u>132,450</u>
Totals, Subsidies and Contributions	<u>6,879,673</u>	<u>14,419,928</u>
Total Expenditures, Net	<u>13,239,766</u>	<u>19,081,333</u>

- SUMMARY OF CONTRACTS AWARDED -

<u>Contract</u> <u>No.</u>	<u>Detail</u> <u>Contractor</u> ** <u>Consultants</u>	<u>Project Engineers</u>	<u>Contract</u> <u>Amount</u> \$
1-59	Don Valley Parkway - Leaside Viaduct to East Branch of Don River; including Relocation of Don Mills Road; Grading, Paving, Drainage, River Relocation, including Check Dam; Don Mills Road Inter- change and four Steel Bridges - Don Mills Road over Don Valley Parkway, Relocated Don River East Branch, C.N.R., and Don Valley Parkway over Taylor Creek; K. J. Beamish Construction Co., Ltd. ** Fenco-Harris	K. J. Gilbert A. F. Allman	2,136,110 #
2-59	Frederick G. Gardiner Expressway - Elevated Structure, from 1100 feet east of Dufferin Street to 515 feet easterly, and new Entrance Road to Canadian National Exhibition from Strachan Avenue; Reinforced Concrete and Structural Steel; Robert McAlpine, Limited, ** Lakeshore Expressway Consultants	A. F. Allman K. J. Gilbert	557,207
3-59	Lawrence Avenue West - Subway under C.P.R., Weston; Reinforced Concrete Structure, including Roadwork, Sidewalks and Curbs; Adjustments to Existing Sewers, Storm Drainage and Street Lighting under C.P.R. and C.N.R. Structures for approximately 1300 feet S. McNally and Sons, Ltd. ** M. M. Dillon and Co., Ltd.	J. L. Shirley	624,390
4-59	Don Valley Parkway - East Branch of Don River to Eglinton Avenue; Grading, Paving, Drainage, including Eglinton Avenue Interchange, and two Bridges - Don Valley Parkway over East Branch of Don River and C.N.R. (Steel), and over Eglinton Avenue (Twin Rigid Frame) Robert McAlpine, Limited, ** Fenco-Harris	K. J. Gilbert A. F. Allman	1,731,736 #

... Contract not completed. Award figure.

5-59	Dufferin Street - From 400 feet south of Eglinton Avenue West to south limit of Ranee Avenue - Pavement Widening The Dufferin Construction Co., Ltd.	766,124 F. T. Stephens
6-59	Frederick G. Gardiner Expressway - Elevated Structure from C.N.E. Works Building to H.E.P.C. Strachan Avenue Sub-Station; Reinforced Concrete and Structural Steel Orsini Construction, Ltd. ** Lakeshore Expressway Consultants.....	1,238,574 A. F. Allman K. J. Gilbert
7-59	Bayview Avenue - North-bound Bridge over Don River at Lawrence Avenue East - Reinforced Concrete and Structural Steel Orsini Construction, Ltd. ** H. A. Babcock and Co., Ltd.	763,921 # J. D. Ellison
8-59	Jane Street - Bloor Street to Dundas Street West; Resurfacing Warren Bituminous Paving Co., Ltd.	122,166 H. S. Watson
9-59	Kipling Avenue - Dundas Street to Highway 401; Resurfacing K. J. Beamish Construction Co., Ltd.	65,387 H. S. Watson
10-59	Dundas Street West - Dovercourt Road to Lansdowne Avenue; Resurfacing Standard Paving, Ltd.	127,736 H. S. Watson
11-59	Keele Street, at Lawrence Avenue West - Intersectional Improvement Warren Bituminous Paving Co., Ltd.	157,046 F. T. Stephens
12-59	Bayview Avenue - Piling and River Diversion for North-bound Bridge over Don River at Lawrence Avenue East The Foundation Co. of Ontario, Ltd. ** H. A. Babcock and Co., Ltd.	189,956 J. D. Ellison O. H. Ellis
13-59	Kingston Road - Widening of Bridge crossing C.N.R. between Eglinton Avenue East and Lawrence Avenue East, and Widening of Approaches Rayner Construction, Ltd.	142,945 H. S. Watson

14-59	Eglinton Avenue East, at Brentcliffe Road - Intersectional Improvement Rayner Construction, Ltd.	H. S. Watson	17,536
15-59	Bathurst Street - From Ellerslie Avenue to approx. 400 feet north of Finch Avenue; Pavement Widening Miller Paving, Ltd.	F. T. Stephens	126,113
16-59	Victoria Park Avenue - From Jonesville Crescent to Deanvar Avenue; Pavement Widening Miller Paving, Ltd.	K. M. Middleton	431,817
17-59	Avenue Road - From Alcorn Avenue to Farnham Avenue; Concrete Retaining Wall and Sidewalks The Foundation Co. of Ontario, Ltd. ** M. M. Dillon and Co., Ltd.	G. M. Bruce	68,731
18-59	Bloor Street West - From Jane Street to Kennedy Avenue; Resurfacing Standard Paving, Ltd.	H. S. Watson	52,707
19-59	Lake Shore Road - From Humber Bridge westerly to Legion Road; Resurfacing Scott-Jackson Construction, Ltd.	H. S. Watson	136,450
20-59	Kingston Road - From Morningside Avenue to Flerimac Road; Resurfacing Miller Paving, Ltd.	H. S. Watson	23,935
21-59	Eglinton Avenue - From Elmsthorpe Avenue to Mt. Pleasant Road; Resurfacing Johnson and Hogan Construction, Ltd.	H. S. Watson	123,867
22-59	Various Metropolitan Roads - Asphaltic Concrete Resurfacing K. J. Beamish Construction Co., Ltd.	H. S. Watson	77,600
23-59	Frederick G. Gardiner Expressway - Elevated Structure, from East limit of Loblaws Building to 800 feet Easterly; Reinforced Concrete and Structural Steel Pigott Construction Co., Ltd. ** Lakeshore Expressway Consultants	K. J. Gilbert A. F. Allman	1,673,949

24-59	Lawrence Avenue West - Prestressed Concrete Bridge over Black Creek between Jane and Keele Streets, and Storm Drainage Carter Construction Co., Ltd. ** Proctor and Redfern	312,926	J. L. Shirley
25-59	St. Clair Avenue East - Repairs to Bridge between Yonge Street and Mt. Pleasant Road - Kamlee Construction, Ltd.	68,060	H. S. Watson
26-59	Bloor Street West - Spadina Road to Dovercourt Road; Resurfacing Standard Paving, Ltd.	120,548	T. H. Johnston
27-59	Bloor Street West - Dovercourt Road to Dundas Street; Resurfacing Johnson and Hogan Construction, Ltd.	121,689	T. H. Johnston
28-59	Lake Shore Boulevard West - Strachan Avenue to Bathurst Street; Pavement Widening John Cucci, Ltd.	52,117	T. H. Johnston
29-59	Danforth Avenue - Broadview Avenue to Jones Avenue; Resurfacing Rayner Construction, Ltd.	92,926	T. H. Johnston
30-59	Avenue Road - Bloor Street to Dupont Street, and McMaster Avenue to St. Clair Avenue; Widening, Asphaltic Concrete Pavement, Fences, Walls, Walks, etc. Johnson and Hogan Construction, Ltd. ** M. M. Dillon and Co., Ltd.	349,779	G. M. Bruce
31-59	Keele Street, at Wilson Avenue - Intersectional Improvement Swansea Construction Co., Ltd.	234,836	F. T. Stephens
32-59	Spadina Road - Dupont Street to Davenport Road; Resurfacing Johnson and Hogan Construction, Ltd.	18,574	T. H. Johnston
33-59	Winter Salting and Snow Plowing - North-East Division Evans Contracting Co., Ltd.	75,356	H. S. Watson

34-59	Winter Salting and Snow Plowing - South-East Division Miller Paving, Ltd.	100,681
	H. S. Watson	
35-59	Winter Salting and Snow Plowing - North-West Division K. J. Beamish Construction Co., Ltd.	124,864
	H. S. Watson	
36-59	Winter Salting and Snow Plowing - South-West Division K. J. Beamish Construction Co., Ltd.	123,591
	H. S. Watson	
37-59	Avenue Road - Subway Structure Under C.P.R. Tracks; Supply, Fabrication, Shop Painting and Erection of Structural Steel Ardelt Industries of Canada, Ltd. ** Proctor and Redfern	252,142
	G. M. Bruce	
38-59	Avenue Road - Subway Structure Under C.P.R. Tracks; Reinforced Concrete Footings, Abutments, and Concrete Deck; Road Work and Storm Drainage Rayner Construction, Ltd. ** Proctor and Redfern	354,863
	G. M. Bruce	
39-59	Don Valley Parkway (Lawrence Avenue East Extension) - Don Mills Road to Victoria Park Avenue - Grading, Drainage, Paving and Four Steel Bridges - Lawrence Avenue over C.N.R.; Don Valley Parkway; Don River, East Branch; and Lawrence Avenue Under C.P.R.; River Diversion and C.P.R. Track Diversion Robert McAlpine, Ltd. ** Fenco-Harris	1,279,561 #
	A. F. Allman	
* * * * *		
1-60	Frederick G. Gardiner Expressway - Renovate Former H.E.P.C. Transformer Building and Construct Addition to Accommodate C.N.E. Works Dept.; Dineen Construction, Ltd. ** A. D. Margison and Associates, Ltd.	422,904
	K. J. Gilbert	
2-60	Frederick G. Gardiner Expressway - Reinforced Concrete and Structural Steel Elevated Structure - from west side of Bathurst Street over Loblaws Groceries Warehouse Pigott Construction Co., Ltd. ** Lakeshore Expressway Consultants	1,473,599 #
	K. J. Gilbert	

3-60	Frederick G. Gardiner Expressway - Reinforced Concrete and Structural Steel Elevated Structure - from Strachan Avenue Through "Fez City" Railway Yard to Fort York and Garrison Road Bridge and Approaches Orsini Construction, Ltd. ** Lakeshore Expressway Consultants K. J. Gilbert	3,116,873 #
4-60	Bloor and Dundas Streets (Six Points) Interchange - Grading, Drainage, Paving, Lighting, Retaining Walls and three Prestressed Concrete Bridges Swansea Construction Co., Ltd. ** Foundation of Canada Engineering Corporation, Ltd. K. M. Middleton	1,237,974 #
5-60	Don Valley Parkway - Royal Drive to Leaside Viaduct - Bloor Street Ramp, including Bayview Avenue and Chesterhill Road Interchange K. J. Beamish Construction Co., Ltd. ** Fenco-Harris A. F. Allman	717,023 #
6-60	Permanent Asphalt Repair of Utility Road Cuts - Various Metropolitan Roads (outside City) on and East of Yonge Street Evans Contracting Co., Ltd. H. S. Watson	54,014
7-60	Permanent Asphalt Repair of Utility Road Cuts - Various Metropolitan Roads (outside City) West of Yonge Street Evans Contracting Co., Ltd. H. S. Watson	50,962
8-60	Dufferin Street - Ranee Avenue to Wilson Avenue; Pavement Widening, Bridge Structure, Retaining Walls and Ramps The Dufferin Construction Co., Ltd. F. T. Stephens	494,333
9-60	Various Roads - Asphaltic Concrete Resurfacing Warren Bituminous Paving Co., Ltd. H. S. Watson	97,438
10-60	Frederick G. Gardiner Expressway - Reinforced Concrete and Structural Steel Elevated Structure from Fort York easterly to Bathurst Street Bedford Construction Co., Ltd. ** Lakeshore Expressway Consultants K. J. Gilbert	1,027,115 #

11-60	Don Valley Parkway - Overpass at St. Dennis Drive, Flemingdon Park - Twin Reinforced Concrete Rigid Frame Structure and Ancillary Works Finley W. McLachlan Contracting (Toronto), Ltd. ** Fenco-Harris	160,392 # A. F. Allman
12-60	St. Clair Avenue West - Runnymede Road to Scarlett Road; Asphaltic Concrete Resurfacing Standard Paving, Ltd.	61,737 T. H. Johnston
13-60	Eglinton Avenue East - Improvement of Various Intersections; Pavement Widening and Channelizing Islands Miller Paving, Ltd.	51,697 T. H. Johnston
14-60	Eglinton Avenue West - Caledonia Road to Oakwood Avenue; and Old Weston Road - St. Clair Avenue to Davenport Road; Asphaltic Concrete Resurfacing Johnson and Hogan Construction, Ltd.	52,932 T. H. Johnston
15-60	Millwood Road - Leaside Bridge to C.P.R. Subway; Pavement Widening Rayner Construction, Ltd.	164,231 T. H. Johnston
16-60	Kipling Avenue - Overpass at C.P.R., south of Bloor Street West; Steel Structure, Adjacent Roadwork, Lighting and Storm Sewer Bedford Construction Co., Ltd. ** Foundation of Canada Engineering Corporation, Ltd.	793,438 # K. M. Middleton
17-60	Bloor Street East - Prince Edward and Rosedale Viaducts - (South sides only); Replacement of Structural Steel, Concrete Roadway, Decks and Sidewalks Steed and Evans, Ltd.	442,072 J. M. Watson
18-60	St. Clair Avenue West - Bathurst Street to Dufferin Street; Asphaltic Concrete Resurfacing Scott-Jackson Construction, Ltd.	180,215 T. H. Johnston

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19-60	Lawrence Avenue West - Intersectional Improvement at Bathurst Street; The Dufferin Construction Co., Ltd.	34,729	T. H. Johnston
20-60	Three Bridges over Black Creek - Single-Span, Reinforced-Concrete Deck over Steel Girders - Jane Street, south of Highway 401; Jane Street, at Rustic Road; and Wilson Avenue, east of Jane Street; The Foundation Co. of Ontario, Ltd.....	329,539	J. L. Shirley
21-60	St. Clair Avenue East - Bridge East of Yonge Street (Vale of Avoca); Cleaning and Painting of Steelwork Conrad-Rawlinson, Ltd.	11,755	T. H. Johnston
22-60	Lawrence Avenue West - 400 feet west of Keele Street to 300 feet east of Jane Street; Asphaltic Concrete Pavement Warren Bituminous Paving Co., Ltd.	182,980	F. T. Stephens
23-60	Victoria Park Avenue - Curlew Drive to Highway 401; Asphaltic Concrete Pavement Johnson and Hogan Construction Co., Ltd.	395,402	K. M. Middleton
24-60	Don Valley Parkway - Bloor Street to Eglinton Avenue; Complete Lighting Installations, including Sub-Stations M. G. Reed and Associates, Ltd. ** Fenco-Harris	210,118 #	A. F. Allman
25-60	Kingston Road, at Celeste Drive - Asphaltic Concrete Service Road Miller Paving, Ltd.	15,242	T. H. Johnston
26-60	Kennedy Road - Eglinton Avenue to Lawrence Avenue - Pavement Widening; and on Lawrence Avenue East - Ainsdale Road to Kennedy Road - Asphaltic Concrete Pavement, Sidewalks and Drainage The Dufferin Construction Co., Ltd.	575,685 #	G. M. Bruce

27-60	Frederick G. Gardiner Expressway - Reinforced Concrete and Structural Steel Elevated Structure at Spadina Avenue; and Lake Shore Boulevard Elevated Structure and Road-Work The Foundation Co. of Canada, Ltd. ** Lakeshore Expressway Consultants K. J. Gilbert	3,746,228 #
28-60	Mt. Pleasant Road - Eglinton Avenue to Lawrence Avenue; Asphaltic Concrete Resurfacing Godson Contracting Co., Ltd. T. H. Johnston	103,142
29-60	Not called for tender. Scheduled to be called in 1961.	
30-60	Bloor Street West - Dundas Street to Oakmount Road; Asphaltic Concrete Resurfacing Curran and Briggs, Ltd. T. H. Johnston	58,547
31-60	Woodbine Avenue - Eastwood Road to Cassels Avenue; Asphaltic Concrete Resurfacing Rayner Construction, Ltd. T. H. Johnston	15,103
32-60	Highland Creek Drive - Danforth Road to 2000 feet southerly; Asphaltic Concrete Resurfacing, and Paving of Parking Lot (Undertaken for Parks Department) K. J. Beamish Construction Co., Ltd. T. H. Johnston	22,486
33-60	Vaughan Road - St. Clair Avenue to Dufferin Street; Asphaltic Concrete Resurfacing Warren Bituminous Paving Co., Ltd. T. H. Johnston	131,941
34-60	Edwards Gardens Parking Lot - Asphaltic Concrete Paving; (Undertaken for Parks Department) K. J. Beamish Construction Co., Ltd. T. H. Johnston	46,505
35-50	Winter Salting and Snow Plowing - Various Roads - North-East Division Miller Paving, Ltd. H. S. Watson	51,234
36-60	Winter Salting and Snow Plowing - Various Roads - South-East Division Miller Paving, Ltd. H. S. Watson	56,078

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37-60	Winter Salting and Snow Plowing - Various Roads - North-West Division K. J. Beamish Construction Co., Ltd. H. S. Watson	66,957
38-60	Winter Salting and Snow Plowing - Various Roads - South-West Division W. A. Ryder Paving, Ltd. H. S. Watson	52,458
39-60	Bathurst Street - at Queen and King Streets - Passenger Loading Platforms and Pavement Widening John Cucci, Ltd. H. S. Watson	13,082
40-60	Don Valley Parkway - Lawrence Avenue East Extension - Carnforth Road to Victoria Park Avenue; Pavement Widening, Curbs and Drainage Miller Paving, Ltd. ** Fenco-Harris A. F. Allman	61,067
41-60	Frederick G. Gardiner Expressway - Reinforced Concrete and Structural Steel Elevated Structure - East of Dufferin Street; and Demolition of C.N.E. Works Building Bedford Construction Co., Ltd. ** Lakeshore Expressway Consultants K. J. Gilbert	748,071



